

THE ASTROPHYSICAL JOURNAL

INDEX TO VOLUME 291, PARTS 1 AND 2

1985 APRIL 1 AND APRIL 15

- AARONSON, MARC. The Infrared Color-Magnitude and Color-Gas Content Relations for Cluster Spirals. *Gregory D. Bothun, Jeremy Mould, Robert A. Schommer, and Marc Aaronson.* **291**, 586, 41-B12 (1985)
Discovery of the First S Star in NGC 6822. *Marc Aaronson, Jeremy Mould, and Kem H. Cook.* **291**, L41, 45-B5 (1985)
- ABADIE, D. Experimental Phosphorus and Sulfur Stark Widths and Systematic Broadening Trends for Third-Row Ions. *M. H. Miller, D. Abadie, and A. Lesage.* **291**, 219, 36-D1 (1985)
- ACTON, L. W. Rocket Spectrogram of a Solar Flare in the 10–100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer.* **291**, 865, 44-E10 (1985)
- ADE, P. A. R. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- ALCOCK, CHARLES. On the Use of Measured Time Delays in Gravitational Lenses to Determine the Hubble Constant. *Charles Alcock and Nels Anderson.* **291**, L29, 45-A7 (1985)
- ALLEN, DAVID A. The Near-Infrared Spectrum of Eta Carinae. *David A. Allen, Terry Jay Jones, and A. R. Hyland.* **291**, 280, 37-B1 (1985)
- ALLKOEFER, O. C. Searches for Narrow-Angle Anisotropies in the Primary energy Range 0.1–10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren.* **291**, 468, 40-A2 (1985)
- ANDERSON, NELS. On the Use of Measured Time Delays in Gravitational Lenses to Determine the Hubble Constant. *Charles Alcock and Nels Anderson.* **291**, L29, 45-A7 (1985)
- ANTHONY-TWAROG, BARBARA J. Faint Stellar Photometry in Clusters. II. NGC 6791 and NGC 6535. *Barbara J. Anthony-Twarog and Bruce A. Twarog.* **291**, 595, 41-C10 (1985)
- ARMANDROFF, TAIT E. Wolf-Rayet Stars in NGC 6822 and IC 1613. *Tait E. Armandroff and Philip Massey.* **291**, 685, 42-C14 (1985)
- ARP, HALTON. Analysis of Groups of Galaxies with Accurate Redshifts. *Halton Arp and Jack W. Sulentic.* **291**, 88, 4-G12 (1985)
- ATHAY, R. G. Magnetic Shear. II. Hale Region 17244. *R. G. Athay, H. P. Jones, and H. Zirin.* **291**, 344, 37-F9 (1985)
- AYRES, T. R. Alpha Trianguli Australis (K2 II–III): Hybrid or Composite? *T. R. Ayres.* **291**, L7, 38-E12 (1985)
- BALBUS, STEVEN A. Classical Thermal Evaporation of Clouds: An Electrostatic Analogy. *Steven A. Balbus.* **291**, 518, 40-D13 (1985)
- BALDWIN, J. A. Kinematics and Ionization of Extended Ionized Gas in Active Galaxies. I. The X-Ray Luminous Galaxies NGC 2110, NGC 5506, and MCG-5-23-16. *A. S. Wilson, J. A. Baldwin, and J. S. Ulvestad.* **291**, 627, 41-F2 (1985)
- BANDIERA, R. The Evolution of Nonthermal Supernova Remnants. II. Can Radio Supernovae Become Plerions: Erratum. *R. Bandiera, F. Pacini, and M. Salvati.* **291**, 394, 38-C11 (1985) (Orig. paper in **285**, 134, 111-D6)
- BASRI, GIBOR. *IUE* Spectra of G0 V–G5 V Solar-Type Stars (Abstract of Paper in 1985 May Suppl.). *Bernhard M. Haisch and Gibor Basri.* **291**, 879, 44-F10 (1985)
- BAUD, B. OH/IR Stars within 50 Parsecs of the Galactic Center. *A. Winnberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olmon.* **291**, L45, 45-B10 (1985)
- BELL, M. B. Detection of HC₁₁N in the Cold Dust Cloud TMC-1. *M. B. Bell and H. E. Matthews.* **291**, L65, 45-D3 (1985)
- BELLA, G. Searches for Narrow-Angle Anisotropies in the Primary energy Range 0.1–10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren.* **291**, 468, 40-A2 (1985)
- BENTLEY, A. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelaz, R. D. Gehrz, G. L. Grasdalén, and J. A. Hackwell.* **291**, 571, 41-A11 (1985)
- BERTRAM, TIMOTHY. Equilibration of ¹⁷⁶Lu^{1.0} during the s-Process. *Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong.* **291**, 834, 44-C3 (1985)
- BERTSCHINGER, EDMUND. Explosions in the Early Universe. *Ethan T. Vishniac, Jeremiah P. Ostriker, and Edmund Bertschinger.* **291**, 399, 39-C3 (1985)
- The Self-similar Evolution of Holes in an Einstein–De Sitter Universe (Abstract of Paper in 1985 May Suppl.). *Edmund Bertschinger.* **291**, 881, 44-F12 (1985)
- Self-similar Secondary Infall and Accretion in an Einstein–De Sitter Universe (Abstract of Paper in 1985 May Suppl.). *Edmund Bertschinger.* **291**, 881, 44-F12 (1985)
- BIERMANN, PETER. The Nucleus of M82 at Radio and X-Ray Bands: Discovery of a New Radio Population of Supernova Candidates. *Philipp P. Kronberg, Peter Biermann, and Frederic R. Schwab.* **291**, 693, 42-E6 (1985)
- BIRKINSHAW, M. The Orientation of the Rotation Axes of Radio Galaxies. I. Radio Morphologies of Bright Elliptical Galaxies. *M. Birkinshaw and Roger L. Davies.* **291**, 32, 34-C11 (1985)
- BLAKE, GEOFFREY A. Direct Measurement of the Fundamental Rotational Transitions of the OH Radical by Laser Sideband Spectroscopy. *Jam Farhoomand, Geoffrey A. Blake, and Herbert M. Pickett.* **291**, L19, 38-F10 (1985)
- BODO, G. Magnetohydrodynamic Instabilities in Cool Inhomogeneous Atmospheres. *G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana.* **291**, 798, 43-G7 (1985)
- BONELLI, GIUSEPPE. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzeno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti.* **291**, L23, 45-A2 (1985)
- BORUCKI, W. J. Detectability of Extrasolar Planetary Transits. *W. J. Borucki, J. D. Scargle, and H. S. Hudson.* **291**, 852, 44-D7 (1985)
- BOTHUN, GREGORY D. The Infrared Color-Magnitude and Color-Gas Content Relations for Cluster Spirals. *Gregory D. Bothun, Jeremy Mould, Robert A. Schommer, and Marc Aaronson.* **291**, 586, 41-B12 (1985)
- BREGMAN, J. N. The Ultraviolet Spectra of Intermediate-Redshift Quasars. *A. L. Kinney, P. J. Huggins, J. N. Bregman, and A. E. Glassgold.* **291**, L28, 35-D2 (1985)
- X-Ray Emission from Red Quasars. *J. N. Bregman, A. E. Glassgold, P. J. Huggins, and A. L. Kinney.* **291**, 505, 40-C12 (1985)
- BROWN, L. M. J. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- BROWN, W. A. Rocket Spectrogram of a Solar Flare in the 10–100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer.* **291**, 865, 44-E10 (1985)
- BRUHWEILER, FREDERICK C. *IUE* Observations of Beta Pictoris: An IRAS Candidate for a Proto-Planetary System. *Yoji Kondo and Frederick C. Bruhweiler.* **291**, L1, 38-E7 (1985)
- BRUNER, M. E. Rocket Spectrogram of a Solar Flare in the 10–100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer.* **291**, 865, 44-E10 (1985)
- BURNS, JACK O. X-Ray Emission Possibly Coincident with the Radio Tail of PKS 0301–123. *Jack O. Burns, Eric R. Nelson, Richard A. White, and Stephen A. Gregory.* **291**, 611, 41-D12 (1985)
- CAMPBELL, BRUCE. Detection of a Supernova in the Host Galaxy of the QSO 1059 + 730. *Bruce Campbell, Carol Christian, Chris Pritchett, and Paul Hickson.* **291**, L37, 45-B1 (1985)
- CARLETON, N. P. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Eluis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore.* **291**, 117, 35-C3 (1985)
- CASTELAZ, M. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelaz, R. D. Gehrz, G. L. Grasdalén, and J. A. Hackwell.* **291**, 571, 41-A11 (1985)
- CERRUTI-SOLA, M. Winds in Central Stars of Planetary Nebulae. *M. Cerruti-Sola and M. Perinotto.* **291**, 237, 36-E8 (1985)
- CHRISTIAN, CAROL. Detection of a Supernova in the Host Galaxy of the QSO 1059 + 730. *Bruce Campbell, Carol Christian, Chris Pritchett, and Paul Hickson.* **291**, L37, 45-B1 (1985)
- CHRISTIANSEN, W. A. Blast Wave Formation of the Extended Stellar Shells Surrounding Elliptical Galaxies. *R. E. Williams and W. A. Christiansen.* **291**, 80, 34-G3 (1985)

- CLARKE, DAVID. Numerical Simulation of the Growth of Thick Accretion Disks (Abstract of Paper in 1985 May Suppl.). *David Clarke, Stephen Karpik, and R. N. Henriksen*. **291**, 880, 44-F11 (1985)
- COHN, HALDAN. The Stability of Confined Radio Jets: The Role of Reflection Modes. *David G. Payne and Haldan Cohn*. **291**, 655, 42-A11 (1985)
- COLE, PETER W. Convective Heating of the Inner Core of Red Giants Prior to the Peak of the Core Helium Flash. *Peter W. Cole, Pierre Demarque, and Robert G. Deupree*. **291**, 291, 37-B12 (1985)
- COOK, KEM H. Discovery of the First S Star in NGC 6822. *Marc Aaronson, Jeremy Mould, and Kem H. Cook*. **291**, L41, 45-B5 (1985)
- COOPERSTOCK, F. I. Reply to C. M. Will on the Axially Symmetric Two-Body Problem in General Relativity. *F. I. Cooperstock and P. H. Lim*. **291**, 460, 39-G8 (1985)
- CORTIGLIONI, STEFANO. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- CRAWFORD, M. K. Far-Infrared Spectroscopy of Galaxies: The 158 Micron C^+ Line and the Energy Balance of Molecular Clouds. *M. K. Crawford, R. Genzel, C. H. Townes, and Dan M. Watson*. **291**, 755, 43-C4 (1985)
- CRENSHAW, D. MICHAEL. The Effects of Stellar-Absorption Features on the Broad-Line Profiles of Seyfert 1 Galaxies. *D. Michael Crenshaw and Bradley M. Peterson*. **291**, 677, 42-C5 (1985)
- DA COSTA, G. S. C0422 - 213 (Eridanus): A Second Intermediate Metal Abundance Globular Cluster in the Outer Galactic Halo. *G. S. Da Costa*. **291**, 230, 36-D12 (1985)
- DANESE, LUIGI. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- DAU, W. D. Searches for Narrow-Angle Anisotropies in the Primary energy Range 0.1-10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren*. **291**, 468, 40-A2 (1985)
- DAVIES, ROGER L. The Orientation of the Rotation Axes of Radio Galaxies. I. Radio Morphologies of Bright Elliptical Galaxies. *M. Birkinshaw and Roger L. Davies*. **291**, 32, 34-C11 (1985)
- DAVILA, JOSEPH M. A Leaky Magnetohydrodynamic Waveguide Model for the Acceleration of High-Speed Solar Wind Streams in Coronal Holes. *Joseph M. Davila*. **291**, 328, 37-E7 (1985)
- DE AMICI, GIOVANNI. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- DEGUCHI, SHUJI. Bowen Fluorescence Mechanism in X-Ray Binaries. *Shuji Deguchi*. **291**, 492, 40-B12 (1985)
- DEMARQUE, PIERRE. Convective Heating of the Inner Core of Red Giants Prior to the Peak of the Core Helium Flash. *Peter W. Cole, Pierre Demarque, and Robert G. Deupree*. **291**, 291, 37-B12 (1985)
- DEUPREE, ROBERT G. Convective Heating of the Inner Core of Red Giants Prior to the Peak of the Core Helium Flash. *Peter W. Cole, Pierre Demarque, and Robert G. Deupree*. **291**, 291, 37-B12 (1985)
- DE ZOTTI, GIANFRANCO. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- DIAZ, ALONSO J. Field Theoretical Model for Nuclear and Neutron Matter. II. Neutron Stars. *Alonso J. Diaz and J. M^a. Ibáñez Cabanell*. **291**, 308, 37-D1 (1985)
- DICKEY, JOHN M. Measurement of Spin Temperatures in a Rapidly Moving H I Shell. *Shrinivas R. Kulkarni, John M. Dickey, and Carl Heiles*. **291**, 716, 42-G7 (1985)
- DINERSTEIN, HARRIET L. Far-Infrared Line Observations of Planetary Nebulae. I. The [O III] Spectrum. *Harriet L. Dinerstein, Daniel F. Lester, and Michael W. Werner*. **291**, 561, 41-A1 (1985)
- DOPITA, M. A. Theoretical Models for H II Regions. I. Diagnostic Diagrams (Abstract of Paper in 1985 May Suppl.). *I. N. Evans and M. A. Dopita*. **291**, 880, 44-F11 (1985)
- DRESSEL, L. L. X-Ray Emission from E and S0 Galaxies with Compact Nuclear Radio Sources. *L. L. Dressel and A. S. Wilson*. **291**, 668, 42-B10 (1985)
- DURWEN, E. J. Detection of the CO ($J = 7 \rightarrow 6$) Rotational Transition at $\lambda = 0.37$ Millimeters toward Orion. *G. V. Schultz, E. J. Durwen, H. P. Röser, W. A. Sherwood, and R. Wattenbach*. **291**, L61, 45-C14 (1985)
- ELITZUR, MOSHE. Line Fluorescence in Astrophysics. *Moshe Elitzur and Hagai Netzer*. **291**, 464, 39-G12 (1985)
- ELVIS, M. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- EPSTEIN, RICHARD I. Feeding a Gamma-Ray Burster. *Richard I. Epstein*. **291**, 822, 44-B5 (1985)
- EVANS, I. N. Theoretical Models for H II Regions. I. Diagnostic Diagrams (Abstract of Paper in 1985 May Suppl.). *I. N. Evans and M. A. Dopita*. **291**, 880, 44-F11 (1985)
- FABBIANO, G. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- FAGUNDES, H. V. Quasar-Galaxy Associations with Discordant Redshifts as a Topological Effect. I. Two-Dimensional Study. *H. V. Fagundes*. **291**, 450, 39-F12 (1985)
- FARHOOMAND, JAM. Direct Measurement of the Fundamental Rotational Transitions of the OH Radical by Laser Sideband Spectroscopy. *Jam Farhoomand, Geoffrey A. Blake, and Herbert M. Pickett*. **291**, L19, 38-F10 (1985)
- FAWCETT, B. C. Rocket Spectrogram of a Solar Flare in the 10-100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer*. **291**, 865, 44-E10 (1985)
- FERRARI, A. Magnetohydrodynamic Instabilities in Cool Inhomogeneous Atmospheres. *G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana*. **291**, 798, 43-G7 (1985)
- FERTEL, J. H. [S II] Images of the Io Torus. *Carl B. Pilcher, J. H. Fertel, and J. S. Morgan*. **291**, 377, 38-B8 (1985)
- FIEDLER, ROBERT A. The Magnetic Flux Problem and Ambipolar Diffusion During Star Formation: One-Dimensional Collapse. II. Results. *T. C. Mouschovias, E. V. Paleologou, and Robert A. Fiedler*. **291**, 772, 43-D9 (1985)
- FISHMAN, G. J. The Frequency of Weak Gamma-Ray Bursts. *C. A. Meegan, G. J. Fishman, and R. B. Wilson*. **291**, 479, 40-A13 (1985)
- FORMAN, WILLIAM. An X-Ray Study of the Centaurus Cluster of Galaxies Using Einstein. *Terry Matlisky, Christine Jones, and William Forman*. **291**, 621, 41-E9 (1985)
- FOUQUÉ, PASCAL. The Extragalactic Distance Scale. I. Corrections to Fundamental Observables (Abstract of Paper in 1985 May Suppl.). *R. Brent Tully and Pascal Fouqué*. **291**, 879, 44-F10 (1985)
- FREEMAN, K. C. Kinematics of K Giants in the Outer Galactic Halo. *Kavan U. Ramatunga and K. C. Freeman*. **291**, 260, 36-G4 (1985)
- FRIEDMAN, SCOTT D. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- FROGEL, JAY A. The Globular Cluster NGC 6712. *Jay A. Frogel*. **291**, 581, 41-B8 (1985)
- GALLAGHER, JOHN S., III. IUE Observations of Amorphous Hot Galaxies. *Susan A. Lamb, John S. Gallagher III, Michael S. Hjellming, and Deidre A. Hunter*. **291**, 63, 34-E14 (1985)
- GASKELL, C. MARTIN. Observational Evidence for the Radiative Acceleration of Broad-Line Clouds in Seyfert 1 Galaxies and Quasars. *C. Martin Gaskell*. **291**, 112, 35-B12 (1985)
- GEAR, W. K. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, J. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky*. **291**, 511, 40-D5 (1985)
- GEBALLE, T. R. Infrared Spectroscopy of Carbon Monoxide in GL 2591 and OMC-1: Irc2. *T. R. Geballe and Richard Wade*. **291**, L57, 45-C10 (1985)
- GEHRZ, R. D. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelar, R. D. Gehrz, G. L. Grasdalen, and J. A. Hackwell*. **291**, 571, 41-A11 (1985)
- GENZEL, R. Far-Infrared Spectroscopy of Galaxies: The 158 Micron C^+ Line and the Energy Balance of Molecular Clouds. *M. K. Crawford, R. Genzel, C. H. Townes, and Dan M. Watson*. **291**, 755, 43-C4 (1985)
- GIL, SALVADOR. Equilibration of $^{176}\text{Lu}^{s,m}$ during the s-Process. *Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong*. **291**, 834, 44-C3 (1985)

- GLASSGOLD, A. E. The Ultraviolet Spectra of Intermediate-Redshift Quasars. *A. L. Kinney, P. J. Huggins, J. N. Bregman, and A. E. Glassgold.* **291**, 128, 35-D2 (1985)
- X-Ray Emission from Red Quasars. *J. N. Bregman, A. E. Glassgold, P. J. Huggins, and A. L. Kinney.* **291**, 505, 40-C12 (1985)
- GLATZMAIER, GARY A. Numerical Simulations of Stellar Convections Dynamos. II. Field Propagation in the Convective Zone. *Gary A. Glatzmaier.* **291**, 300, 37-C7 (1985)
- GRASDALEN, G. L. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelar, R. D. Gehrz, G. L. Grasdalen, and J. A. Hackwell.* **291**, 571, 41-A11 (1985)
- GREGORY, STEPHEN A. X-Ray Emission Possibly Coincident with the Radio Tail of PKS 0301 - 123. *Jack O. Burns, Eric R. Nelson, Richard A. White, and Stephen A. Gregory.* **291**, 611, 41-D12 (1985)
- GRIFFIN, M. J. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nott, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- HABING, H. J. OH/IR Stars within 50 Parsecs of the Galactic Center. *A. Winberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olmon.* **291**, L45, 45-B10 (1985)
- HACKWELL, J. A. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelar, R. D. Gehrz, G. L. Grasdalen, and J. A. Hackwell.* **291**, 571, 41-A11 (1985)
- HAISCH, BERNHARD M. IUE Spectra of G0 V-G5 V Solar-Type Stars (Abstract of Paper in 1985 May Suppl.). *Bernhard M. Haisch and Gibor Basri.* **291**, 879, 44-F10 (1985)
- HAMILTON, A. J. S. Similarity Solutions for the Structure of Supernova Blast Waves Driven by Clumped Ejecta. I. Undecelerated Clumps. *A. J. S. Hamilton.* **291**, 513, 40-E4 (1985)
- HANES, DAVID A. Globular Clusters in Galaxies beyond the Local Group. IV. The Elliptical Galaxies NGC 524 and 1052. *William E. Harris and David A. Hanes.* **291**, 147, 35-E7 (1985)
- HARDING, A. K. The Galactic Gamma-Ray Distribution: Implications for Galactic Structure and the Radial Cosmic-Ray Gradient. *A. K. Harding and F. W. Stecker.* **291**, 471, 40-A5 (1985)
- HARPAZ, A. Compact Objects in Bimetric General Relativity. *A. Harpaz and N. Rosen.* **291**, 417, 39-D7 (1985)
- HARRIS, WILLIAM E. Globular Clusters in Galaxies beyond the Local Group. IV. The Elliptical Galaxies NGC 524 and 1052. *William E. Harris and David A. Hanes.* **291**, 147, 35-E7 (1985)
- HEILES, CARL. Measurement of Spin Temperatures in a Rapidly Moving H I Shell. *Srinivas R. Kulkarni, John M. Dickey, and Carl Heiles.* **291**, 716, 42-G7 (1985)
- HELFAND, DAVID J. Self-Consistent Models for the X-Ray Emission from Supernova Remnants: An Application to Kepler's Remnant. *John P. Hughes and David J. Helfand.* **291**, 544, 40-F11 (1985)
- HENRIKSEN, R. N. Numerical Simulation of the Growth of Thick Accretion Disks (Abstract of Paper in 1985 May Suppl.). *David Clarke, Stephen Karpik, and R. N. Henriksen.* **291**, 880, 44-F11 (1985)
- HERBST, ERIC. An Update of and Suggested Increase in Calculated Radiative Association Rate Coefficients. *Eric Herbst.* **291**, 226, 36-D8 (1985)
- HICKSON, PAUL. Detection of a Supernova in the Host Galaxy of the QSO 1059 + 730. *Bruce Campbell, Carol Christian, Chris Pritchett, and Paul Hickson.* **291**, L37, 45-B1 (1985)
- HJELLMING, MICHAEL S. IUE Observations of Amorphous Hot Galaxies. *Susan A. Lamb, John S. Gallagher III, Michael S. Hjellming, and Deidre A. Hunter.* **291**, 63, 34-E14 (1985)
- HOLLENBACH, DAVID. Photodissociation Regions. I. Basic Model. *A. G. G. M. Tielens and David Hollenbach.* **291**, 722, 42-G13 (1985)
- Photodissociation Regions. II. A Model for the Orion Photodissociation Region. *A. G. G. M. Tielens and David Hollenbach.* **291**, 747, 43-B10 (1985)
- HONEYCUTT, R. KENT. Chromospheric Activity and TiO Bands in M Giants. *Thomas Y. Steiman-Cameron, Hollis R. Johnson, and R. Kent Honeycutt.* **291**, L51, 45-C2 (1985)
- HRIVNAK, BRUCE J. The Age and Helium Content of the Eclipsing Binary AI Phoenixis. *Don A. Vandenberg and Bruce J. Hrivnak.* **291**, 270, 37-A1 (1985)
- HUDSON, H. S. Detectability of Extrasolar Planetary Transits. *W. J. Borucki, J. D. Scargle, and H. S. Hudson.* **291**, 852, 44-D7 (1985)
- HUENEMOERDER, D. P. IUE Observations of a Starburst Disk and the Detectability of High Redshift Galaxies. *D. W. Weedman and D. P. Huenemoerder.* **291**, 72, 34-F9 (1985)
- HUGGINS, P. J. The Ultraviolet Spectra of Intermediate-Redshift Quasars. *A. L. Kinney, P. J. Huggins, J. N. Bregman, and A. E. Glassgold.* **291**, 128, 35-D2 (1985)
- X-Ray Emission from Red Quasars. *J. N. Bregman, A. E. Glassgold, P. J. Huggins, and A. L. Kinney.* **291**, 505, 40-C12 (1985)
- HUGHES, JOHN P. Self-Consistent Models for the X-Ray Emission from Supernova Remnants: An Application to Kepler's Remnant. *John P. Hughes and David J. Helfand.* **291**, 544, 40-F11 (1985)
- HUNTER, DEIDRE A. IUE Observations of Amorphous Hot Galaxies. *Susan A. Lamb, John S. Gallagher III, Michael S. Hjellming, and Deidre A. Hunter.* **291**, 63, 34-E14 (1985)
- HUTERS, A. F. Search for Gamma-Ray Line Emission from SS 433. *C. J. MacCallum, A. F. Hutters, P. D. Stang, and M. Levental.* **291**, 486, 40-B6 (1985)
- HYLAND, A. R. The Near-Infrared Spectrum of Eta Carinae. *David A. Allen, Terry Jay Jones, and A. R. Hyland.* **291**, 280, 37-B1 (1985)
- IBÁÑEZ CABANELL, J. M^a. Field Theoretical Model for Nuclear and Neutron Matter. II. Neutron Stars. *Alonso J. Diaz and J. M^a. Ibáñez Cabanell.* **291**, 308, 37-D1 (1985)
- ISRAEL, F. P. Detection of Molecular Hydrogen in the Small Magellanic Cloud H II Region N81. *J. Koornneef and F. P. Israel.* **291**, 156, 35-F5 (1985)
- JENNINGS, D. E. Laboratory Measurement of the S(9) Pure Rotation Frequency in H₂. *D. E. Jennings, L. A. Rahn, and A. Onyong.* **291**, L15, 38-F6 (1985)
- JOHNSON, HOLLIS R. Chromospheric Activity and TiO Bands in M Giants. *Thomas Y. Steiman-Cameron, Hollis R. Johnson, and R. Kent Honeycutt.* **291**, L51, 45-C2 (1985)
- JOKISCH, H. Searches for Narrow-Angle Anisotropies in the Primary Energy Range 0.1-10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren.* **291**, 468, 40-A2 (1985)
- JONES, CHRISTINE. An X-Ray Study of the Centaurus Cluster of Galaxies Using Einstein. *Terry Matilsky, Christine Jones, and William Forman.* **291**, 621, 41-E9 (1985)
- JONES, H. P. Magnetic Shear. II. Hale Region 17244. *R. G. Athay, H. P. Jones, and H. Zirin.* **291**, 344, 37-F9 (1985)
- JONES, TERRY JAY. The Near-Infrared Spectrum of Eta Carinae. *David A. Allen, Terry Jay Jones, and A. R. Hyland.* **291**, 280, 37-B1 (1985)
- JORDAN, STEVEN P. The Isotopic Composition of Helium in the Cosmic Radiation above 11 Gigavolts. *Steven P. Jordan.* **291**, 207, 36-C3 (1985)
- JOU, D. Second-Order Coefficients for Radiating Fluids. *D. Jou and D. Pavón.* **291**, 447, 39-F9 (1985)
- KÄPPELER, F. Stellar Neutron Capture Rates for ⁴⁶Ca and ⁴⁸Ca. *F. Käppeler, G. Walter, and G. J. Mathews.* **291**, 319, 37-D12 (1985)
- KARPIK, STEPHEN. Numerical Simulation of the Growth of Thick Accretion Disks (Abstract of Paper in 1985 May Suppl.). *David Clarke, Stephen Karpik, and R. N. Henriksen.* **291**, 880, 44-F11 (1985)
- KEENAN, F. P. The ¹S-n ¹P/¹S-2 ¹P Emission-Line Ratios in O VII as Temperature Diagnostics for Solar Flares and Active Regions. *F. P. Keenan, A. E. Kingston, and D. L. McKenzie.* **291**, 855, 44-D10 (1985)
- KELLOGG, STEPHEN E. Equilibration of ¹⁷⁶Lu^m During the s-Process. *Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong.* **291**, 834, 44-C3 (1985)
- KINGSTON, A. E. The ¹S-n ¹P/¹S-2 ¹P Emission-Line Ratios in O VII as Temperature Diagnostics for Solar Flares and Active Regions. *F. P. Keenan, A. E. Kingston, and D. L. McKenzie.* **291**, 855, 44-D10 (1985)
- KINNEY, A. L. The Ultraviolet Spectra of Intermediate-Redshift Quasars. *A. L. Kinney, P. J. Huggins, J. N. Bregman, and A. E. Glassgold.* **291**, 128, 35-D2 (1985)
- X-Ray Emission from Red Quasars. *J. N. Bregman, A. E. Glassgold, P. J. Huggins, and A. L. Kinney.* **291**, 505, 40-C12 (1985)
- KIRSHNER, ROBERT P. Dynamics of Luminous Galaxies. II. Surface Photometry and Velocity Dispersions of Brightest Cluster Members. *Eliot M. Malumuth and Robert P. Kirshner.* **291**, 8, 34-A13 (1985)
- KLEMKER, G. Searches for Narrow-Angle Anisotropies in the Primary Energy Range 0.1-10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren.* **291**, 468, 40-A2 (1985)
- KONDO, YOJI. IUE Observations of Beta Pictoris: An IRAS Candidate for a Proto-Planetary System. *Yoji Kondo and Frederick C. Bruhweiler.* **291**, L1, 38-E7 (1985)
- KOORNNEEF, J. Detection of Molecular Hydrogen in the Small Magellanic Cloud H II Region N81. *J. Koornneef and F. P. Israel.* **291**, 156, 35-F5 (1985)
- KOVETZ, A. CNO Abundances Resulting from Diffusion in Accreting Nova Progenitors. *A. Kovetz and D. Prialnik.* **291**, 812, 44-A8 (1985)
- KRONBERG, PHILIPP P. The Nucleus of M82 at Radio and X-Ray Bands: Discovery of a New Radio Population of Supernova Candidates. *Philipp P. Kronberg, Peter Biermann, and Frederic R. Schwab.* **291**, 693, 42-E6 (1985)

- KULKARNI, SHRINIVAS R. Measurement of Spin Temperatures in a Rapidly Moving H I Shell. *Shrinivas R. Kulkarni, John M. Dickey, and Carl Heiles*. **291**, 716, 42-G7 (1985)
- KUNDU, M. R. Multiwavelength Observations of a Preflare Solar Active Region Using the VLA. *M. R. Kundu and R. K. Shevgaonkar*. **291**, 860, 44-E2 (1985)
- KUTNER, MARC L. On the Conversion of Carbon Monoxide Intensities to Molecular Hydrogen Abundances. *Marc L. Kutner and Chun Ming Leung*. **291**, 188, 36-A12 (1985)
- LAMB, SUSAN A. IUE Observations of Amorphous Hot Galaxies. *Susan A. Lamb, John S. Gallagher III, Michael S. Hjellming, and Deidre A. Hunter*. **291**, 63, 34-E14 (1985)
- LAWRENCE, A. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- LEBOFSKY, L. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky*. **291**, 511, 40-D5 (1985)
- LEE, L. C. Photodissociation Rates of OH, OD, and CN by the Interstellar Radiation Field. *Jan B. Nee and L. C. Lee*. **291**, 202, 36-B12 (1985)
- LESAGE, A. Experimental Phosphorus and Sulfur Stark Widths and Systematic Broadening Trends for Third-Row Ions. *M. H. Miller, D. Abadie, and A. Lesage*. **291**, 219, 36-D1 (1985)
- LESTER, DANIEL F. Far-Infrared Line Observations of Planetary Nebulae. I. The [O III] Spectrum. *Harriet L. Dinerstein, Daniel F. Lester, and Michael W. Werner*. **291**, 561, 41-A1 (1985)
- LEUNG, CHUN MING. On the Conversion of Carbon Monoxide Intensities to Molecular Hydrogen Abundances. *Marc L. Kutner and Chun Ming Leung*. **291**, 188, 36-A12 (1985)
- LEVENTAL, M. Search for Gamma-Ray Line Emission from SS 433. *C. J. MacCallum, A. F. Hutters, P. D. Stang, and M. Levental*. **291**, 486, 40-B6 (1985)
- LIM, P. H. Reply to C. M. Will on the Axially Symmetric Two-Body Problem in General Relativity. *F. I. Cooperstock and P. H. Lim*. **291**, 460, 39-G8 (1985)
- LISSAUER, JACK J. Nonlinear Spiral Density Waves: An Inviscid Theory. *Frank H. Shu, Chi Yuan, and Jack J. Lissauer*. **291**, 356, 38-A1 (1985)
- LISZT, H. S. Upper Limits on the O₂/CO Ratio in Two Dense Interstellar Clouds. *H. S. Liszt and P. A. Vanden Bout*. **291**, 178, 36-A1 (1985)
- LOCKWOOD, G. W. Near-Infrared Photometry of Unidentified IRC Stars. III. The Mira Variables of Spectral Type M10 (Abstract of Paper in 1985 May Suppl.). *G. W. Lockwood*. **291**, 881, 44-F12 (1985)
- LONGMORE, A. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- MACCALLUM, C. J. Search for Gamma-Ray Line Emission from SS 433. *C. J. MacCallum, A. F. Hutters, P. D. Stang, and M. Levental*. **291**, 486, 40-B6 (1985)
- MALUMUTH, ELIOT M. Dynamics of Luminous Galaxies. II. Surface Photometry and Velocity Dispersions of Brightest Cluster Members. *Eliot M. Malumuth and Robert P. Kirshner*. **291**, 8, 34-A13 (1985)
- MANDOLESI, NAZZARENO. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- MASSAGLIA, S. Magneto-hydrodynamic Instabilities in Cool Inhomogeneous Atmospheres. *G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana*. **291**, 798, 43-G7 (1985)
- MASSEY, PHILIP. Wolf-Rayet Stars in NGC 6822 and IC 1613. *Taft E. Armandroff and Philip Massey*. **291**, 685, 42-C14 (1985)
- MATTHEWS, G. J. Stellar Neutron Capture Rates for ⁴⁶Ca and ⁴⁸Ca. *F. Kappeler, G. Walter, and G. J. Mathews*. **291**, 319, 37-D12 (1985)
- MATHIS, JOHN S. Ionization Correction Factors for Low-Excitation Gaseous Nebulae. *John S. Mathis*. **291**, 247, 36-F5 (1985)
- MATILSKY, TERRY. An X-Ray Study of the Centaurus Cluster of Galaxies Using Einstein. *Terry Matlsky, Christine Jones, and William Forman*. **291**, 621, 41-E9 (1985)
- MATTHEWS, H. E. OH/IR Stars within 50 Parsecs of the Galactic Center. *A. Winnberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olnon*. **291**, L45, 45-B10 (1985)
- Detection of HC₁₁N in the Cold Dust Cloud TMC-1. *M. B. Bell and H. E. Matthews*. **291**, L65, 45-D3 (1985)
- MCKENZIE, D. L. The 1¹S-*n* 1¹P/1¹S-2¹P Emission-Line Ratios in O VII as Temperature Diagnostics for Solar Flares and Active Regions. *F. P. Keenan, A. E. Kingston, and D. L. McKenzie*. **291**, 855, 44-D10 (1985)
- MEEGAN, C. A. The Frequency of Weak Gamma-Ray Bursts. *C. A. Meegan, G. J. Fishman, and R. B. Wilson*. **291**, 479, 40-A13 (1985)
- MILLER, M. H. Experimental Phosphorus and Sulfur Stark Widths and Systematic Broadening Trends for Third-Row Ions. *M. H. Miller, D. Abadie, and A. Lesage*. **291**, 219, 36-D1 (1985)
- MORGAN, J. S. [S II] Images of the Io Torus. *Carl B. Pilcher, J. H. Fertel, and J. S. Morgan*. **291**, 377, 38-B8 (1985)
- MORIGI, GABRIELE. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- MOULD, JEREMY. The Infrared Color-Magnitude and Color-Gas Content Relations for Cluster Spirals. *Gregory D. Bothun, Jeremy Mould, Robert A. Schommer, and Marc Aaronson*. **291**, 586, 41-B12 (1985)
- Discovery of the First S Star in NGC 6822. *Marc Aaronson, Jeremy Mould, and Kem H. Cook*. **291**, L41, 45-B5 (1985)
- MOUSCHOVIAS, T. C. The Magnetic Flux Problem and Ambipolar Diffusion During Star Formation: One-Dimensional Collapse. II. Results. *T. C. Mouschovias, E. V. Paleologou, and Robert A. Fiedler*. **291**, 772, 43-D9 (1985)
- MYERS, STEVEN T. Synchrotron Aging in the Lobes of Luminous Radio Galaxies. *Steven T. Myers and Steven R. Spangler*. **291**, 52, 34-E3 (1985)
- NAGATA, TETSUYA. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita*. **291**, 708, 42-F13 (1985)
- NAGEL, W. The Anisotropic Radiative Transfer Problem in Optically Thick, Strongly Magnetized Plasma: A Comparison of Results. *G. G. Pavlov, Yu. A. Shibano, N. A. Silant'ev, and W. Nagel*. **291**, 170, 35-G5 (1985)
- NAKAJIMA, TADASHI. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita*. **291**, 708, 42-F13 (1985)
- NEE, JAN B. Photodissociation Rates of OH, OD, and CN by the Interstellar Radiation Field. *Jan B. Nee and L. C. Lee*. **291**, 202, 36-B12 (1985)
- NELSON, ERIC R. X-Ray Emission Possibly Coincident with the Radio Tail of PKS 0301 - 123. *Jack O. Burns, Eric R. Nelson, Richard A. White, and Stephen A. Gregory*. **291**, 611, 41-D12 (1985)
- NETZER, HAGAI. Line Fluorescence in Astrophysics. *Moshe Elitzur and Hagai Netzer*. **291**, 464, 39-G12 (1985)
- NISHIDA, MINORU. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita*. **291**, 708, 42-F13 (1985)
- NOLT, I. G. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky*. **291**, 511, 40-D5 (1985)
- NOONAN, THOMAS W. The Equations of Motion of a Test Particle with Spin and Self-Gravity. *Thomas W. Noonan*. **291**, 422, 39-D12 (1985)
- NORMAN, ERIC B. Equilibration of ¹⁷⁶Lu^{±m} during the s-Process. *Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong*. **291**, 834, 44-C3 (1985)
- OLNON, F. M. OH/IR Stars within 50 Parsecs of the Galactic Center. *A. Winnberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olnon*. **291**, L45, 45-B10 (1985)
- OREN, Y. Searches for Narrow-Angle Anisotropies in the Primary energy Range 0.1-10 TeV. *O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren*. **291**, 468, 40-A2 (1985)
- OSTRIKER, JEREMIAH P. Explosions in the Early Universe. *Ethan T. Vishniac, Jeremiah P. Ostriker, and Edmund Bertschinger*. **291**, 399, 39-C3 (1985)
- OWYOUNG, A. Laboratory Measurement of the S(9) Pure Rotation Frequency in H₂. *D. E. Jennings, L. A. Rahn, and A. Owyong*. **291**, L15, 38-F6 (1985)
- PACINI, F. The Evolution of Nonthermal Supernova Remnants. II. Can Radio Supernovae Become Plerions? Erratum. *R. Bandiera, F. Pacini, and M. Salvati*. **291**, 394, 38-C11 (1985) (Orig. paper in **285**, 134, 111-D6)

- PALEOLOGOU, E. V. The Magnetic Flux Problem and Ambipolar Diffusion During Star Formation: One-Dimensional Collapse. II. Results. *T. C. Mouschovias, E. V. Paleologou, and Robert A. Fiedler.* **291**, 772, 43-D9 (1985)
- PANEK, ROBERT J. Ultraviolet Spectral Morphology of the O Stars. III. The ON and OC Stars. *Nolan R. Walborn and Robert J. Panek.* **291**, 806, 44-A1 (1985)
- PARTRIDGE, R. BRUCE. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti.* **291**, L23, 45-A2 (1985)
- PAVLOV, G. G. The Anisotropic Radiative Transfer Problem in Optically Thick, Strongly Magnetized Plasma: A Comparison of Results. *G. G. Pavlov, Yu. A. Shibano, N. A. Silant'ev, and W. Nagel.* **291**, 170, 35-G5 (1985)
- PAYON, D. Second-Order Coefficients for Radiating Fluids. *D. Jou and D. Payon.* **291**, 447, 39-F9 (1985)
- PAYNE, DAVID G. The Stability of Confined Radio Jets: The Role of Reflection Modes. *David G. Payne and Haldan Cohn.* **291**, 655, 42-A11 (1985)
- PERINOTTO, M. Winds in Central Stars of Planetary Nebulae. *M. Cerruti-Sola and M. Perinotto.* **291**, 237, 36-E8 (1985)
- PETERSON, BRADLEY M. The Effects of Stellar-Absorption Features on the Broad-Line Profiles of Seyfert 1 Galaxies. *D. Michael Crenshaw and Bradley M. Peterson.* **291**, 677, 42-C5 (1985)
- PICKETT, HERBERT M. Direct Measurement of the Fundamental Rotational Transitions of the OH Radical by Laser Sideband Spectroscopy. *Jam Farhoomand, Geoffrey A. Blake, and Herbert M. Pickett.* **291**, L19, 38-F10 (1985)
- PILCHER, CARL B. [S II] Images of the Io Torus. *Carl B. Pilcher, J. H. Fertel, and J. S. Morgan.* **291**, 377, 38-B8 (1985)
- PRIALNIK, D. CNO Abundances Resulting from Diffusion in Accreting Nova Progenitors. *A. Kovetz and D. Prialnik.* **291**, 812, 44-A8 (1985)
- PRICE, RICHARD H. Pair Production in Spherical Accretion onto Black Holes. *August L. Schultz and Richard H. Price.* **291**, 1, 34-A6 (1985)
- PRITCHET, CHRIS. Detection of a Supernova in the Host Galaxy of the QSO 1059 + 730. *Bruce Campbell, Carol Christian, Chris Pritchett, and Paul Hickson.* **291**, L37, 45-B1 (1985)
- RADOSTITZ, J. V. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- RAHN, L. A. Laboratory Measurement of the S(9) Pure Rotation Frequency in H₂. *D. E. Jennings, L. A. Rahn, and A. Owyang.* **291**, L15, 38-F6 (1985)
- RATNATUNGA, KAVAN U. Kinematics of K Giants in the Outer Galactic Halo. *Kavan U. Ratnatunga and K. C. Freeman.* **291**, 260, 36-G4 (1985)
- REYNOLDS, STEPHEN P. An Evolutionary History for the Crablike, Pulsar-powered Supernova Remnant 0540 - 69.3. *Stephen P. Reynolds.* **291**, 152, 35-F1 (1985)
- ROBSON, E. I. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- ROSEN, N. Compact Objects in Bimetric General Relativity. *A. Harpaz and N. Rosen.* **291**, 417, 39-D7 (1985)
- RÖSER, H. P. Detection of the CO ($J = 7 \rightarrow 6$) Rotational Transition at $\lambda = 0.37$ Millimeters toward Orion. *G. V. Schultz, E. J. Durwen, H. P. Röser, W. A. Sherwood, and R. Wattenbach.* **291**, L61, 45-C14 (1985)
- ROSNER, R. Magnetohydrodynamic Instabilities in Cool Inhomogeneous Atmospheres. *G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana.* **291**, 798, 43-G7 (1985)
- SALVATI, M. The Evolution of Nonthermal Supernova Remnants. II. Can Radio Supernovae Become Plerions? (Erratum. *R. Bandiera, F. Pacini, and M. Salvati.* **291**, 394, 38-C11 (1985) (Orig. paper in **285**, 134, 111-D6)
- SANDFORD, SCOTT A. Laboratory Infrared Transmission Spectra of Individual Interplanetary Dust Particles from 2.5 to 25 Microns. *Scott A. Sandford and Robert M. Walker.* **291**, 838, 44-C7 (1985)
- SATO, SHUJI. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita.* **291**, 708, 42-F13 (1985)
- SCARGLE, J. D. Detectability of Extrasolar Planetary Transits. *W. J. Borucki, J. D. Scargle, and H. S. Hudson.* **291**, 852, 44-D7 (1985)
- SCHOMMER, ROBERT A. The Infrared Color-Magnitude and Color-Gas Content Relations for Cluster Spirals. *Gregory D. Bothun, Jeremy Mould, Robert A. Schommer, and Marc Aaronson.* **291**, 586, 41-B12 (1985)
- SCHRAMM, DAVID N. An Expanding Vortex Site for the r -Process in Rotating Stellar Collapse. *Eugene M. D. Symbolist, David N. Schramm, and James R. Wilson.* **291**, L11, 38-F2 (1985)
- SCHULTZ, AUGUST L. Pair Production in Spherical Accretion onto Black Holes. *August L. Schultz and Richard H. Price.* **291**, 1, 34-A6 (1985)
- SCHULTZ, G. V. Detection of the CO ($J = 7 \rightarrow 6$) Rotational Transition at $\lambda = 0.37$ Millimeters toward Orion. *G. V. Schultz, E. J. Durwen, H. P. Röser, W. A. Sherwood, and R. Wattenbach.* **291**, L61, 45-C14 (1985)
- SCHUTZ, BERNARD F. Black Hole Normal Modes: A Semianalytic Approach. *Bernard F. Schutz and Clifford M. Will.* **291**, L33, 45-A11 (1985)
- SCHWAB, FREDERIC R. The Nucleus of M82 at Radio and X-Ray Bands: Discovery of a New Radio Population of Supernova Candidates. *Philipp P. Kronberg, Peter Biermann, and Frederic R. Schwab.* **291**, 693, 42-E6 (1985)
- SCHWEIZER, W. Rocket Spectrogram of a Solar Flare in the 10-100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer.* **291**, 865, 44-E10 (1985)
- SHERWOOD, W. A. Detection of the CO ($J = 7 \rightarrow 6$) Rotational Transition at $\lambda = 0.37$ Millimeters toward Orion. *G. V. Schultz, E. J. Durwen, H. P. Röser, W. A. Sherwood, and R. Wattenbach.* **291**, L61, 45-C14 (1985)
- SHEVGAONKAR, R. K. Multiwavelength Observations of a Preflare Solar Active Region Using the VLA. *M. R. Kundu and R. K. Shevgaonkar.* **291**, 860, 44-E2 (1985)
- SHIBANOV, YU. A. The Anisotropic Radiative Transfer Problem in Optically Thick, Strongly Magnetized Plasma: A Comparison of Results. *G. G. Pavlov, Yu. A. Shibano, N. A. Silant'ev, and W. Nagel.* **291**, 170, 35-G5 (1985)
- SHU, FRANK H. Nonlinear Spiral Density Waves: An Inviscid Theory. *Frank H. Shu, Chi Yuan, and Jack J. Lissauer.* **291**, 356, 38-A1 (1985)
- SILANT'EV, N. A. The Anisotropic Radiative Transfer Problem in Optically Thick, Strongly Magnetized Plasma: A Comparison of Results. *G. G. Pavlov, Yu. A. Shibano, N. A. Silant'ev, and W. Nagel.* **291**, 170, 35-G5 (1985)
- SIRONI, GIORGIO. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti.* **291**, L23, 45-A2 (1985)
- SMITH, J. Infrared Sources and Excitation of the W40 Complex. *J. Smith, A. Bentley, M. Castelar, R. D. Gehrz, G. L. Grassdale, and J. A. Hackwell.* **291**, 571, 41-A11 (1985)
- SMITH, M. G. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky.* **291**, 511, 40-D5 (1985)
- SMOOT, GEORGE F. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti.* **291**, L23, 45-A2 (1985)
- SNODGRASS, HERSCHEL B. Solar Torsional Oscillations: A Net Pattern with Wavenumber 2 as Artifact. *Herschel B. Snodgrass.* **291**, 339, 37-F4 (1985)
- SPANGLER, STEVEN R. Synchrotron Aging in the Lobes of Luminous Radio Galaxies. *Steven T. Myers and Steven R. Spangler.* **291**, 52, 34-E3 (1985)
- SPARKS, WARREN M. Recurrent Novae as a Consequence of the Accretion of Solar Material onto a 1.38 M_{\odot} White Dwarf. *Sumner Starrfield, Warren M. Sparks, and James W. Truran.* **291**, 136, 35-D10 (1985)
- SPEER, R. J. Rocket Spectrogram of a Solar Flare in the 10-100 Å Region. *L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer.* **291**, 865, 44-E10 (1985)
- STANG, P. D. Search for Gamma-Ray Line Emission from SS 433. *C. J. MacCallum, A. F. Hutters, P. D. Stang, and M. Levental.* **291**, 486, 40-B6 (1985)
- STARRFIELD, SUMNER. Recurrent Novae as a Consequence of the Accretion of Solar Material onto a 1.38 M_{\odot} White Dwarf. *Sumner Starrfield, Warren M. Sparks, and James W. Truran.* **291**, 136, 35-D10 (1985)
- STECKER, F. W. The Galactic Gamma-Ray Distribution: Implications for Galactic Structure and the Radial Cosmic-Ray Gradient. *A. K. Harding and F. W. Stecker.* **291**, 471, 40-A5 (1985)

- STEIMAN-CAMERON, THOMAS Y. Chromospheric Activity and TiO Bands in M Giants. *Thomas Y. Steiman-Cameron, Hollis R. Johnson, and R. Kent Honeycutt*. **291**, L51, 45-C2 (1985)
- STOELINGA, S. J. M. On the Cosmological Parameters. *S. J. M. Stoelinga*. **291**, 396, 39-B13 (1985)
- STONE, RONALD C. X-Ray Observations of the Runaway Stars HD 206327 and 26 Cephei and of the λ Orionis Region. *Ronald C. Stone and Ronald E. Taam*. **291**, 183, 36-A6 (1985)
- SULENTIC, JACK W. Analysis of Groups of Galaxies with Accurate Redshifts. *Halton Arp and Jack W. Sulentic*. **291**, 88, 4-G12 (1985)
- SYMBALISTY, EUGENE M. D. An Expanding Vortex Site for the r -Process in Rotating Stellar Collapse. *Eugene M. D. Symbalisty, David N. Schramm, and James R. Wilson*. **291**, L11, 38-F2 (1985)
- TAAM, RONALD E. X-Ray Observations of the Runaway Stars HD 206327 and 26 Cephei and of the λ Orionis Region. *Ronald C. Stone and Ronald E. Taam*. **291**, 183, 36-A6 (1985)
- TANAKA, MASUO. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita*. **291**, 708, 42-F13 (1985)
- TIELENS, A. G. G. M. Photodissociation Regions. I. Basic Model. *A. G. G. M. Tielens and David Hollenbach*. **291**, 722, 42-G13 (1985)
- Photodissociation Regions. II. A Model for the Orion Photodissociation Region. *A. G. G. M. Tielens and David Hollenbach*. **291**, 747, 43-B10 (1985)
- TONRY, JOHN L. The Nature of Orbits of Multiple Nuclei near Brightest Cluster Galaxies. *John L. Tonry*. **291**, 45, 34-D10 (1985)
- TOWNES, C. H. Far-Infrared Spectroscopy of Galaxies: The 158 Micron C^+ Line and the Energy Balance of Molecular Clouds. *M. K. Crawford, R. Genzel, C. H. Townes, and Dan M. Watson*. **291**, 755, 43-C4 (1985)
- TRURAN, JAMES W. Recurrent Novae as a Consequence of the Accretion of Solar Material onto a $1.38 M_{\odot}$ White Dwarf. *Sumner Starrfield, Warren M. Sparks, and James W. Truran*. **291**, 136, 35-D10 (1985)
- TULLY, R. BRENT. The Extragalactic Distance Scale. I. Corrections to Fundamental Observables (Abstract of Paper in 1985 May Suppl.). *R. Brent Tully and Pascal Fouqué*. **291**, 879, 44-F10 (1985)
- TWAROG, BRUCE A. Faint Stellar Photometry in Clusters. II. NGC 6791 and NGC 6535. *Barbara J. Anthony-Twarog and Bruce A. Twarog*. **291**, 595, 41-C10 (1985)
- UHR, R. C. Searches for Narrow-Angle Anisotropies in the Primary energy Range 0.1–10 TeV. *O. C. Alkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren*. **291**, 468, 40-A2 (1985)
- ULVESTAD, J. S. Kinematics and Ionization of Extended Ionized Gas in Active Galaxies. I. The X-Ray Luminous Galaxies NGC 2110, NGC 5506, and MCG-5-23-16. *A. S. Wilson, J. A. Baldwin, and J. S. Ulvestad*. **291**, 627, 41-F2 (1985)
- VAIANA, G. S. Magnetohydrodynamic Instabilities in Cool Inhomogeneous Atmospheres. *G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana*. **291**, 798, 43-G7 (1985)
- VANDENBERG, DON A. The Age and Helium Content of the Eclipsing Binary AI Phoenicis. *Don A. Vandenberg and Bruce J. Hrivnak*. **291**, 270, 37-A1 (1985)
- VANDEN BOUT, P. A. Upper Limits on the O_2/CO Ratio in Two Dense Interstellar Clouds. *H. S. Liszt and P. A. Vanden Bout*. **291**, 178, 36-A1 (1985)
- VEEDER, G. Multifrequency Observations of Blazars. I. The Shape of the 1 Micron to 2 Millimeter Continuum. *W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Noll, J. V. Radostitz, G. Veeder, and L. Lebofsky*. **291**, 511, 40-D5 (1985)
- VISHNIAK, ETHAN T. Explosions in the Early Universe. *Ethan T. Vishniac, Jeremiah P. Ostriker, and Edmund Bertschinger*. **291**, 399, 39-C3 (1985)
- WADE, RICHARD. Infrared Spectroscopy of Carbon Monoxide in GL 2591 and OMC-1:IRc2. *T. R. Geballe and Richard Wade*. **291**, L57, 45-C10 (1985)
- WALBORN, NOLAN R. Ultraviolet Spectral Morphology of the O Stars. III. The ON and OC Stars. *Nolan R. Walborn and Robert J. Panek*. **291**, 806, 44-A1 (1985)
- WALKER, ROBERT M. Laboratory Infrared Transmission Spectra of Individual Interplanetary Dust Particles from 2.5 to 25 Microns. *Scott A. Sandford and Robert M. Walker*. **291**, 838, 44-C7 (1985)
- WALTER, G. Stellar Neutron Capture Rates for ^{46}Ca and ^{48}Ca . *F. Käppeler, G. Walter, and G. J. Mathews*. **291**, 319, 37-D12 (1985)
- WARD, MARTIN. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- WATSON, DAN M. Far-Infrared Spectroscopy of Galaxies: The 158 Micron C^+ Line and the Energy Balance of Molecular Clouds. *M. K. Crawford, R. Genzel, C. H. Townes, and Dan M. Watson*. **291**, 755, 43-C4 (1985)
- WATTENBACH, R. Detection of the CO ($J = 7 \rightarrow 6$) Rotational Transition at $\lambda = 0.37$ Millimeters toward Orion. *G. V. Schultz, E. J. Durwen, H. P. Röser, W. A. Sherwood, and R. Wattenbach*. **291**, L61, 45-C14 (1985)
- WEEDMAN, D. W. IUE Observations of a Starburst Disk and the Detectability of High Redshift Galaxies. *D. W. Weedman and D. P. Huenemoerder*. **291**, 72, 34-F9 (1985)
- WERNER, MICHAEL W. Far-Infrared Line Observations of Planetary Nebulae. I. The [O III] Spectrum. *Harriet L. Dinerstein, Daniel F. Lester, and Michael W. Werner*. **291**, 561, 41-A1 (1985)
- WHITE, RICHARD A. X-Ray Emission Possibly Coincident with the Radio Tail of PKS 0301 – 123. *Jack O. Burns, Eric R. Nelson, Richard A. White, and Stephen A. Gregory*. **291**, 611, 41-D12 (1985)
- WILL, CLIFFORD M. Black Hole. Normal Modes: A Semianalytic Approach. *Bernard F. Schutz and Clifford M. Will*. **291**, L33, 45-A11 (1985)
- WILLIAMS, R. E. Blast Wave Formation of the Extended Stellar Shells Surrounding Elliptical Galaxies. *R. E. Williams and W. A. Christiansen*. **291**, 80, 34-G3 (1985)
- WILLNER, S. P. Observations from 1 to 20 Microns of Low-Luminosity Active Galaxies. *A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore*. **291**, 117, 35-C3 (1985)
- WILSON, A. S. Kinematics and Ionization of Extended Ionized Gas in Active Galaxies. I. The X-Ray Luminous Galaxies NGC 2110, NGC 5506, and MCG-5-23-16. *A. S. Wilson, J. A. Baldwin, and J. S. Ulvestad*. **291**, 627, 41-F2 (1985)
- X-Ray Emission from E and S0 Galaxies with Compact Nuclear Radio Sources. *L. L. Dressel and A. S. Wilson*. **291**, 668, 42-B10 (1985)
- WILSON, JAMES R. An Expanding Vortex Site for the r -Process in Rotating Stellar Collapse. *Eugene M. D. Symbalisty, David N. Schramm, and James R. Wilson*. **291**, L11, 38-F2 (1985)
- WILSON, R. B. The Frequency of Weak Gamma-Ray Bursts. *C. A. Meegan, G. J. Fishman, and R. B. Wilson*. **291**, 479, 40-A13 (1985)
- WINGLEE, R. M. Effects of a Finite Plasma Temperature on Electron-Cyclotron Maser Emission. *R. M. Winglee*. **291**, 160, 35-F9 (1985)
- WINNBERG, A. OH/IR Stars within 50 Parsecs of the Galactic Center. *A. Winnberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olmon*. **291**, L45, 45-B10 (1985)
- WITEBSKY, CHRIS. Low-Frequency Measurements of the Cosmic Background Radiation Spectrum. *George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglion, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti*. **291**, L23, 45-A2 (1985)
- WONG, PETER. Equilibration of $^{176}\text{Lu}^{t.m.}$ during the s -Process. *Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong*. **291**, 834, 44-C3 (1985)
- YAMASHITA, TAKUYA. Polarimetry of Infrared Sources in Bipolar CO Flows. *Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita*. **291**, 708, 42-F13 (1985)
- YUAN, CHI. Nonlinear Spiral Density Waves: An Inviscid Theory. *Frank H. Shu, Chi Yuan, and Jack J. Lissauer*. **291**, 356, 38-A1 (1985)
- ZARRO, D. M. The Gravity Dependence of the H α Width in Late-Type Stars. *D. M. Zarro*. **291**, 297, 37-C4 (1985)
- ZIRIN, H. Magnetic Shear. II. Hale Region 17244. *R. G. Athay, H. P. Jones, and H. Zirin*. **291**, 344, 37-F9 (1985)
- ZIRIN, HAROLD. The Rise and Fall of Sunspot Group 18962: A Case of Magnetic Submergence. *Harold Zirin*. **291**, 858, 44-D13 (1985)

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 291, PART 1

1985 APRIL 1, Number 1

	Page	Fiche
PAIR PRODUCTION IN SPHERICAL ACCRETION ONTO BLACK HOLESAugust L. Schultz and Richard H. Price	1	34-A6
DYNAMICS OF LUMINOUS GALAXIES. II. SURFACE PHOTOMETRY AND VELOCITY DISPERSIONS OF BRIGHTEST CLUSTER MEMBERSEliot M. Mahumuth and Robert P. Kirshner	8	34-A13
THE ORIENTATIONS OF THE ROTATION AXES OF RADIO GALAXIES. I. RADIO MORPHOLOGIES OF BRIGHT ELLIPTICAL GALAXIESM. Birkinshaw and Roger L. Davies	32	34-C11
THE NATURE OF ORBITS OF MULTIPLE NUCLEI NEAR BRIGHTEST CLUSTER GALAXIESJohn L. Tonry	45	34-D10
SYNCHROTRON AGING IN THE LOBES OF LUMINOUS RADIO GALAXIESSteven T. Myers and Steven R. Spangler	52	34-E3
IUE OBSERVATIONS OF AMORPHOUS HOT GALAXIES Susan A. Lamb, John S. Gallagher III, Michael S. Hjellming, and Deidre A. Hunter	63	34-E14
IUE OBSERVATIONS OF A STARBURST DISK AND THE DETECTABILITY OF HIGH REDSHIFT GALAXIES D. W. Weedman and D. P. Huenemoerder	72	34-F9
BLAST WAVE FORMATION OF THE EXTENDED STELLAR SHELLS SURROUNDING ELLIPTICAL GALAXIES R. E. Williams and W. A. Christiansen	80	34-G3
ANALYSIS OF GROUPS OF GALAXIES WITH ACCURATE REDSHIFTSHalton Arp and Jack W. Sulentic	88	34-G12
OBSERVATIONAL EVIDENCE FOR THE RADIATIVE ACCELERATION OF BROAD-LINE CLOUDS IN SEYFERT 1 GALAXIES AND QUASARSC. Martin Gaskell	112	35-B12
OBSERVATIONS FROM 1 TO 20 MICRONS OF LOW-LUMINOSITY ACTIVE GALAXIES A. Lawrence, Martin Ward, M. Elvis, G. Fabbiano, S. P. Willner, N. P. Carleton, and A. Longmore	117	35-C3
THE ULTRAVIOLET SPECTRA OF INTERMEDIATE-REDSHIFT QUASARS A. L. Kinney, P. J. Huggins, J. N. Bregman, and A. E. Glassgold	128	35-D2
RECURRENT NOVAE AS A CONSEQUENCE OF THE ACCRETION OF SOLAR MATERIAL ONTO A 1.38 M_{\odot} WHITE DWARFSumner Starrfield, Warren M. Sparks, and James W. Truran	136	35-D10
GLOBULAR CLUSTERS IN GALAXIES BEYOND THE LOCAL GROUP. IV. THE ELLIPTICAL GALAXIES NGC 524 AND NGC 1052William E. Harris and David A. Hanes	147	35-E7
AN EVOLUTIONARY HISTORY FOR THE CRABLIKE PULSAR-POWERED SUPERNOVA REMNANT 0540-693 Stephen P. Reynolds	152	35-F1
DETECTION OF MOLECULAR HYDROGEN IN THE SMALL MAGELLANIC CLOUD H II REGION N81 J. Koornneef and F. P. Israel	156	35-F5
EFFECTS OF A FINITE PLASMA TEMPERATURE ON ELECTRON-CYCLOTRON MASER EMISSIONR. M. Winglee	160	35-F9
THE ANISOTROPIC RADIATIVE TRANSFER PROBLEM IN OPTICALLY THICK, STRONGLY MAGNETIZED PLASMA: A COMPARISON OF RESULTSG. G. Pavlov, Yu. A. Shibano, N. A. Silant'ev, and W. Nagel	170	35-G5
UPPER LIMITS ON THE O_2/CO RATIO IN TWO DENSE INTERSTELLAR CLOUDSH. S. Liszt and P. A. Vanden Bout	178	36-A1
X-RAY OBSERVATIONS OF THE RUNAWAY STARS HD 206327 AND 26 CEPHEI AND OF THE λ^1 ORIONIS REGION.....Ronald C. Stone and Ronald E. Taam	183	36-A6
ON THE CONVERSION OF CARBON MONOXIDE INTENSITIES TO MOLECULAR HYDROGEN ABUNDANCES Marc L. Kutner and Chun Ming Leung	188	36-A12
PHOTODISSOCIATION RATES OF OH, OD, AND CN BY THE INTERSTELLAR RADIATION FIELD Jan B. Nee and L. C. Lee	202	36-B12
THE ISOTOPIC COMPOSITION OF HELIUM IN THE COSMIC RADIATION ABOVE 11 GIGAVOLTS .Steven P. Jordan	207	36-C3

	Page	Fiche
EXPERIMENTAL PHOSPHORUS AND SULFUR STARK WIDTHS AND SYSTEMATIC BROADENING TRENDS FOR THIRD-ROW IONS	<i>M. H. Miller, D. Abadie, and A. Lesage</i>	219 36-D1
AN UPDATE OF AND SUGGESTED INCREASE IN CALCULATED RADIATIVE ASSOCIATION RATE COEFFICIENTS	<i>Eric Herbst</i>	226 36-D8
C0422-213 (ERIDANUS): A SECOND INTERMEDIATE METAL ABUNDANCE GLOBULAR CLUSTER IN THE OUTER GALACTIC HALO	<i>G. S. Da Costa</i>	230 36-D12
WINDS IN CENTRAL STARS OF PLANETARY NEBULAE	<i>M. Cerruti-Sola and M. Perinotto</i>	237 36-E8
IONIZATION CORRECTION FACTORS FOR LOW-EXCITATION GASEOUS NEBULAE	<i>John S. Mathis</i>	247 36-F5
KINEMATICS OF K GIANTS IN THE OUTER GALACTIC HALO	<i>Kavan U. Ratnatunga and K. C. Freeman</i>	260 36-G4
THE AGE AND HELIUM CONTENT OF THE ECLIPSING BINARY AI PHOENICIS	<i>Don A. Vandenberg and Bruce J. Hrivnak</i>	270 37-A1
THE NEAR-INFRARED SPECTRUM OF ETA CARINAE	<i>David A. Allen, Terry Jay Jones, and A. R. Hyland</i>	280 37-B1
CONVECTIVE HEATING OF THE INNER CORE OF RED GIANTS PRIOR TO THE PEAK OF THE CORE HELIUM FLASH	<i>Peter W. Cole, Pierre Demarque, and Robert G. Deupree</i>	291 37-B12
THE GRAVITY DEPENDENCE OF THE $H\alpha$ WIDTH IN LATE-TYPE STARS	<i>D. M. Zarro</i>	297 37-C4
NUMERICAL SIMULATIONS OF STELLAR CONVECTIVE DYNAMOS. II. FIELD PROPAGATION IN THE CONVECTION ZONE	<i>Gary A. Glatzmaier</i>	300 37-C7
FIELD THEORETICAL MODEL FOR NUCLEAR AND NEUTRON MATTER. II. NEUTRON STARS	<i>J. Diaz Alonso and J. M^a. Ibáñez Cabanell</i>	308 37-D1
STELLAR NEUTRON CAPTURE RATES FOR ^{46}Ca AND ^{48}Ca	<i>F. Käppeler, G. Walter, and G. J. Mathews</i>	319 37-D12
A LEAKY MAGNETOHYDRODYNAMIC WAVEGUIDE MODEL FOR THE ACCELERATION OF HIGH-SPEED SOLAR WIND STREAMS IN CORONAL HOLES	<i>Joseph M. Davila</i>	328 37-E7
SOLAR TORSIONAL OSCILLATIONS: A NET PATTERN WITH WAVENUMBER 2 AS ARTIFACT	<i>Herschel B. Snodgrass</i>	339 37-F4
MAGNETIC SHEAR. II. HALE REGION 17244	<i>R. G. Athay, H. P. Jones, and H. Zirin</i>	344 37-F9
NONLINEAR SPIRAL DENSITY WAVES: AN INVISCID THEORY	<i>Frank H. Shu, Chi Yuan, and Jack J. Lissauer</i>	356 38-A1
[S II] IMAGES OF THE IO TORUS	<i>Carl B. Pilcher, J. H. Fertel, and J. S. Morgan</i>	377 38-B8
ERRATUM		
THE EVOLUTION OF NONTHERMAL SUPERNOVA REMNANTS. II. CAN RADIO SUPERNOVAE BECOME PLERIONS?	<i>R. Bandiera, F. Pacini, and M. Salvati</i>	394 38-C11
INSTRUCTIONS TO AUTHORS		i 38-C12

1985 APRIL 15, Number 2

ON THE COSMOLOGICAL PARAMETERS	<i>S. J. M. Stoelinga</i>	396 39-B13
EXPLOSIONS IN THE EARLY UNIVERSE	<i>Ethan T. Vishniac, Jeremiah P. Ostriker, and Edmund Bertschinger</i>	399 39-C3
COMPACT OBJECTS IN BIMETRIC GENERAL RELATIVITY	<i>Amos Harpaz and Nathan Rosen</i>	417 39-D7
THE EQUATIONS OF MOTION OF A TEST PARTICLE WITH SPIN AND SELF-GRAVITY	<i>Thomas W. Noonan</i>	422 39-D12
SECOND-ORDER COEFFICIENTS FOR RADIATING FLUIDS	<i>D. Jou and D. Pavón</i>	447 39-F9
QUASAR-GALAXY ASSOCIATIONS WITH DISCORDANT REDSHIFTS AS A TOPOLOGICAL EFFECT. I. TWO-DIMENSIONAL STUDY	<i>Helio V. Fagundes</i>	450 39-F12
REPLY TO C. M. WILL ON THE AXIALLY SYMMETRIC TWO-BODY PROBLEM IN GENERAL RELATIVITY	<i>F. I. Cooperstock and P. H. Lim</i>	460 39-G8
LINE FLUORESCENCE IN ASTROPHYSICS	<i>Moshe Elitzur and Hagai Netzer</i>	464 39-G12

CONTENTS

v

	Page	Fiche
SEARCHES FOR NARROW-ANGLE ANISOTROPIES IN THE PRIMARY ENERGY RANGE 0.1-10 TeV <i>O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren</i>	468	40-A2
THE GALACTIC GAMMA-RAY DISTRIBUTION: IMPLICATIONS FOR GALACTIC STRUCTURE AND THE RADIAL COSMIC-RAY GRADIENT <i>A. K. Harding and F. W. Stecker</i>	471	40-A5
THE FREQUENCY OF WEAK GAMMA-RAY BURSTS <i>C. A. Meegan, G. J. Fishman, and R. B. Wilson</i>	479	40-A13
SEARCH FOR GAMMA-RAY LINE EMISSION FROM SS 433 ... <i>C. J. MacCallum, A. F. Hutters, P. D. Stang, and M. Leventhal</i>	486	40-B6
BOWEN FLUORESCENCE MECHANISM IN X-RAY BINARIES <i>Shuji Deguchi</i>	492	40-B12
X-RAY EMISSION FROM RED QUASARS <i>J. N. Bregman, A. E. Glassgold, P. J. Huggins, and A. L. Kinney</i>	505	40-C12
MULTIFREQUENCY OBSERVATIONS OF BLAZARS. I. THE SHAPE OF THE 1 MICRON TO 2 MILLIMETER CONTINUUM <i>W. K. Gear, E. I. Robson, P. A. R. Ade, M. J. Griffin, L. M. J. Brown, M. G. Smith, I. G. Nolt, J. V. Radostitz, G. Veeder, and L. Lebofsky</i>	511	40-D5
CLASSICAL THERMAL EVAPORATION OF CLOUDS: AN ELECTROSTATIC ANALOGY <i>Steven A. Balbus</i>	518	40-D13
SIMILARITY SOLUTIONS FOR THE STRUCTURE OF SUPERNOVA BLAST WAVES DRIVEN BY CLUMPED EJECTA. I. UNDECCELERATED CLUMPS <i>A. J. S. Hamilton</i>	523	40-E4
SELF-CONSISTENT MODELS FOR THE X-RAY EMISSION FROM SUPERNOVA REMNANTS: AN APPLICATION TO KEPLER'S REMNANT <i>John P. Hughes and David J. Helfand</i>	544	40-F11
FAR-INFRARED LINE OBSERVATIONS OF PLANETARY NEBULAE. I. THE [O III] SPECTRUM <i>Harriet L. Dinerstein, Daniel F. Lester, and Michael W. Werner</i>	561	41-A1
INFRARED SOURCES AND EXCITATION OF THE W40 COMPLEX <i>J. Smith, A. Bentley, M. Castelaz, R. D. Gehrz, G. L. Grasdalen, and J. A. Hackwell</i>	571	41-A11
THE GLOBULAR CLUSTER NGC 6712 <i>Jay A. Frogel</i>	581	41-B8
THE INFRARED COLOR-MAGNITUDE AND COLOR-GAS CONTENT RELATIONS FOR CLUSTER SPIRALS <i>Gregory D. Bothun, Jeremy Mould, Robert A. Schommer, and Marc Aaronson</i>	586	41-B12
FAINT STELLAR PHOTOMETRY IN CLUSTERS. II. NGC 6791 AND NGC 6535 <i>Barbara J. Anthony-Twarog and Bruce A. Twarog</i>	595	41-C10
X-RAY EMISSION POSSIBLY COINCIDENT WITH THE RADIO TAIL OF PKS 0301-123 <i>Jack O. Burns, Eric R. Nelson, Richard A. White, and Stephen A. Gregory</i>	611	41-D12
AN X-RAY STUDY OF THE CENTAURUS CLUSTER OF GALAXIES USING EINSTEIN <i>Terry Matlsky, Christine Jones, and William Forman</i>	621	41-E9
KINEMATICS AND IONIZATION OF EXTENDED IONIZED GAS IN ACTIVE GALAXIES. I. THE X-RAY LUMINOUS GALAXIES NGC 2110, NGC 5506, AND MCG-5-23-16 <i>A. S. Wilson, J. A. Baldwin, and J. S. Ulvestad</i>	627	41-F2
THE STABILITY OF CONFINED RADIO JETS: THE ROLE OF REFLECTION MODES <i>David G. Payne and Haldan Cohn</i>	655	42-A11
X-RAY EMISSION FROM E AND S0 GALAXIES WITH COMPACT NUCLEAR RADIO SOURCES <i>L. L. Dressel and A. S. Wilson</i>	668	42-B10
THE EFFECTS OF STELLAR ABSORPTION FEATURES ON THE BROAD-LINE PROFILES OF SEYFERT I GALAXIES <i>D. Michael Crenshaw and Bradley M. Peterson</i>	677	42-C5
WOLF-RAYET STARS IN NGC 6822 AND IC 1613 <i>Taft E. Armandroff and Philip Massey</i>	685	42-C14
THE NUCLEUS OF M82 AT RADIO AND X-RAY BANDS: DISCOVERY OF A NEW RADIO POPULATION OF SUPERNOVA CANDIDATES <i>Philipp P. Kronberg, Peter Biermann, and Frederic R. Schwab</i>	693	42-E6
POLARIMETRY OF INFRARED SOURCES IN BIPOLAR CO FLOWS <i>Shuji Sato, Tetsuya Nagata, Tadashi Nakajima, Minoru Nishida, Masuo Tanaka, and Takuya Yamashita</i>	708	42-F13
MEASUREMENT OF SPIN TEMPERATURES IN A RAPIDLY MOVING H I SHELL <i>Shrinivas R. Kulkarni, John M. Dickey, and Carl Heiles</i>	716	42-G7
PHOTODISSOCIATION REGIONS. I. BASIC MODEL <i>A. G. G. M. Tielens and David Hollenbach</i>	722	42-G13
PHOTODISSOCIATION REGIONS. II. A MODEL FOR THE ORION PHOTODISSOCIATION REGION <i>A. G. G. M. Tielens and David Hollenbach</i>	747	43-B10

	Page	Fiche
FAR-INFRARED SPECTROSCOPY OF GALAXIES: THE 158 MICRON C ⁺ LINE AND THE ENERGY BALANCE OF MOLECULAR CLOUDS	M. K. Crawford, R. Genzel, C. H. Townes, and Dan M. Watson 755	43-C4
THE MAGNETIC FLUX PROBLEM AND AMBIPOLAR DIFFUSION DURING STAR FORMATION: ONE-DIMENSIONAL COLLAPSE. II. RESULTS	Telemachos Ch. Mouschovias, Efthimos V. Paleologou, and Robert A. Fiedler 772	43-D9
MAGNETOHYDRODYNAMIC THERMAL INSTABILITIES IN COOL INHOMOGENEOUS ATMOSPHERES	G. Bodo, A. Ferrari, S. Massaglia, R. Rosner, and G. S. Vaiana 798	43-G7
ULTRAVIOLET SPECTRAL MORPHOLOGY OF THE O STARS. III. THE ON AND OC STARS	Nolan R. Walborn and Robert J. Panek 806	44-A1
CNO ABUNDANCES RESULTING FROM DIFFUSION IN ACCRETING NOVA PROGENITORS	Attay Kovetz and Dina Prialnik 812	44-A8
FEEDING A GAMMA-RAY BURSTER	Richard I. Epstein 822	44-B5
EQUILIBRATION OF ¹⁷⁶ Lu ^{B-m} DURING THE s-PROCESS	Eric B. Norman, Timothy Bertram, Stephen E. Kellogg, Salvador Gil, and Peter Wong 834	44-C3
LABORATORY INFRARED TRANSMISSION SPECTRA OF INDIVIDUAL INTERPLANETARY DUST PARTICLES FROM 2.5 TO 25 MICRONS	Scott A. Sandford and Robert M. Walker 838	44-C7
DETECTABILITY OF EXTRASOLAR PLANETARY TRANSITS	W. J. Borucki, J. D. Scargle, and H. S. Hudson 852	44-D7
THE 1 ⁵ S-n ¹ P/1 ⁵ S-2 ¹ P EMISSION-LINE RATIOS IN O VII AS TEMPERATURE DIAGNOSTICS FOR SOLAR FLARES AND ACTIVE REGIONS	F. P. Keenan, A. E. Kingston, and D. L. McKenzie 855	44-D10
THE RISE AND FALL OF SUNSPOT GROUP 18962: A CASE OF MAGNETIC SUBMERGENCE	Harold Zirin 858	44-D13
MULTIWAVELENGTH OBSERVATIONS OF A PREFLARE SOLAR ACTIVE REGION USING THE VLA	M. R. Kundu and R. K. Shevgaonkar 860	44-E2
ROCKET SPECTROGRAM OF A SOLAR FLARE IN THE 10-100 Å REGION	L. W. Acton, M. E. Bruner, W. A. Brown, B. C. Fawcett, W. Schweizer, and R. J. Speer 865	44-E10
ABSTRACTS OF ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1985 MAY ISSUE		
IUE SPECTRA OF G0 V-G5 V SOLAR-TYPE STARS	Bernhard M. Haisch and Gibor Basri 879	44-F10
THE EXTRAGALACTIC DISTANCE SCALE. I. CORRECTIONS TO FUNDAMENTAL OBSERVABLES	R. Brent Tully and Pascal Fouqué 879	44-F10
NUMERICAL SIMULATION OF THE GROWTH OF THICK ACCRETION DISKS	David Clarke, Stephen Karpik, and R. N. Henriksen 880	44-F11
THEORETICAL MODELS FOR H II REGIONS. I. DIAGNOSTIC DIAGRAMS	I. N. Evans and M. A. Dopita 880	44-F11
NEAR-INFRARED PHOTOMETRY OF UNIDENTIFIED IRC STARS. III. THE MIRA VARIABLES OF SPECTRAL TYPE M10	G. W. Lockwood 881	44-F12
THE SELF-SIMILAR EVOLUTION OF HOLES IN AN EINSTEIN-DE SITTER UNIVERSE	Edmund Bertschinger 881	44-F12
SELF-SIMILAR SECONDARY INFALL AND ACCRETION IN AN EINSTEIN-DE SITTER UNIVERSE	Edmund Bertschinger 881	44-F12
INDEX TO VOLUME 291, PARTS 1 AND 2	i	39-B1

THE ASTROPHYSICAL JOURNAL LETTERS TO THE EDITOR

CONTENTS OF VOLUME 291, PART 2

1985 April 1, Number 1

	Page	Fiche
IUE OBSERVATIONS OF BETA PICTORIS: AN IRAS CANDIDATE FOR A PROTO-PLANETARY SYSTEM <i>Yoji Kondo and Frederick C. Bruhweiler</i>	L1	38-E7
ALPHA TRIANGULI AUSTRALIS (K2 II-III): HYBRID OR COMPOSITE? <i>T. R. Ayres</i>	L7	38-E12
AN EXPANDING VORTEX SITE FOR THE ν -PROCESS IN ROTATING STELLAR COLLAPSE <i>Eugene M. D. Symbalisty, David N. Schramm, and James R. Wilson</i>	L11	38-F2
LABORATORY MEASUREMENT OF THE S(9) PURE ROTATION FREQUENCY IN H ₂ <i>D. E. Jennings, L. A. Rahn, and A. Owyong</i>	L15	38-F6
DIRECT MEASUREMENT OF THE FUNDAMENTAL ROTATIONAL TRANSITIONS OF THE OH RADICAL BY LASER SIDE BAND SPECTROSCOPY <i>Jam Farhoomand, Geoffrey A. Blake, and Herbert M. Pickett</i>	L19	38-F10

1985 April 15, Number 2

	Page	Fiche
LOW-FREQUENCY MEASUREMENTS OF THE COSMIC BACKGROUND RADIATION SPECTRUM <i>George F. Smoot, Giovanni De Amici, Scott D. Friedman, Chris Witebsky, Giorgio Sironi, Giuseppe Bonelli, Nazzareno Mandolesi, Stefano Cortiglioni, Gabriele Morigi, R. Bruce Partridge, Luigi Danese, and Gianfranco De Zotti</i>	L23	45-A2
ON THE USE OF MEASURED TIME DELAYS IN GRAVITATIONAL LENSES TO DETERMINE THE HUBBLE CONSTANT <i>Charles Alcock and Nels Anderson</i>	L29	45-A7
BLACK HOLE NORMAL MODES: A SEMIANALYTIC APPROACH <i>Bernard F. Schutz and Clifford M. Will</i>	L33	45-A11
DETECTION OF A SUPERNOVA IN THE HOST GALAXY OF THE QSO 1059+730 <i>Bruce Campbell, Carol Christian, Chris Pritchett, and Paul Hickson</i>	L37	45-B1
DISCOVERY OF THE FIRST S STAR IN NGC 6822 <i>Marc Aaronson, Jeremy Mould, and Kem H. Cook</i>	L41	45-B5
OH/IR STARS WITHIN 50 PARSECS OF THE GALACTIC CENTER <i>A. Winnberg, B. Baud, H. E. Matthews, H. J. Habing, and F. M. Olmon</i>	L45	45-B10
CHROMOSPHERIC ACTIVITY AND TiO BANDS IN M GIANTS <i>Thomas Y. Steiman-Cameron, Hollis R. Johnson, and R. Kent Honeycutt</i>	L51	45-C2
INFRARED SPECTROSCOPY OF CARBON MONOXIDE IN GL 2591 AND OMC-1:IRc2 ... <i>T. R. Geballe and Richard Wade</i>	L55	45-C10
DETECTION OF THE CO ($J = 7 \rightarrow 6$) ROTATIONAL TRANSITION AT $\lambda = 0.37$ MILLIMETERS TOWARD ORION <i>G. V. Schultz, E. J. Durven, H. P. Röser, W. A. Sherwood, and R. Wattenbach</i>	L59	45-C14
DETECTION OF HC ₁₁ N IN THE COLD DUST CLOUD TMC-1 <i>M. B. Bell and H. E. Matthews</i>	L63	45-D3